

## CLAIMS

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1. Apparatus for decoding packetized program information from a first source to provide data content of a program, comprising:  
 means for identifying (22,60) ancillary information in said packetized program information, said ancillary information including information describing a multimedia object associated with an image in said packetized program information, said multimedia object description information comprising,  
 10 (a) a location indicator (610) identifying a location of a multimedia object for use in acquiring said multimedia object, and  
 (b) a type indicator (605) identifying a multimedia object type for use in decoding said multimedia object; and  
 means for acquiring and decoding (22, 30, 60) said multimedia  
 15 object using said multimedia object description information; and  
 means for formatting (30, 37, 60) said multimedia object for display.

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2. Apparatus according to claim 1, wherein  
 said location indicator identifies a location of said multimedia object in one of (a) said packetized program information from said first source, and (b) information derived from a second source different to said first source.

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3. Apparatus according to claim 2, wherein  
 said location indicator identifies a location of said multimedia object derived from said first source using one of (a) an MPEG compatible packet Identifier (PID), (b) an MPEG compatible Digital Storage Media code.

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4. Apparatus according to claim 2, wherein  
 said location indicator identifies a location of said multimedia object derived from said second source using one of (a) an Internet URL, (b) an Internet IP address, (c) an Email address, (d) a telephone/fax/videophone number.

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5. Apparatus according to claim 4, wherein  
 said means for acquiring said multimedia object includes establishing bi-directional communication with said second source using said location indicator, and said bi-directional communication path is different to the communication path between said decoding apparatus and said first source.

6. Apparatus according to claim 1, wherein

said multimedia object type comprises at least one of, (a) a video segment or still image, (b) an audio segment, (c) text, (d) an Internet web page or Internet data, (e) an advertisement, (f) an icon for user selection of a service, (g) an animation segment, (h) an Email message, (i) a user prompting indicator, and (j) a broadcast channel identification icon.

7. Apparatus according to claim 1, wherein

said multimedia object description information further includes at least one of, (a) an object start time, (b) an object duration, (c) an object display mode, (d) an object version number, (e) an object format, for use in decoding.

8. Apparatus according to claim 1, wherein

said formatting means includes means for associating said multimedia object with one of (a) a video image, and (b) audio data, and said formatting means forms a composite image for display combining said multimedia object and at least one of, (a) an electronic program guide, (b) a video program, and (c) an Internet web page image.

9. Apparatus according to claim 1, wherein

said ancillary information comprises program specific information for conveying an electronic program guide from said first source, and wherein said multimedia object is associated with said electronic program guide.

10. A storage medium containing digital data representing video information comprising:

packetized program information representing a video program; and ancillary information (205, 210, 215, 220) including information describing a multimedia object associated with an image in said packetized program information, said multimedia object description information comprising,

(a) a location indicator (610) identifying a location of said multimedia object for use in acquiring said multimedia object, and

(b) a type indicator (605) identifying a multimedia object type for use in decoding said multimedia object; and

information (215; 825; 840) for associating said multimedia object with an image in said packetized program information.

11. A storage medium according to claim 10, wherein  
said ancillary information comprises program specific information  
containing an electronic program guide, and wherein  
5 said multimedia object is associated with said electronic program  
guide.

12. A method for forming program guide information at a first  
source suitable for decoding packetized program information to provide data  
content of a program, comprising the steps of:

forming information describing a multimedia object associated with  
an image in said packetized program information, said multimedia object  
description information comprising:

(a) a location indicator identifying a location of a multimedia  
object for use in acquiring said multimedia object, and

(b) a type indicator identifying a multimedia object type for  
use in decoding said multimedia object; and

forming linking information associating said multimedia object with  
an image in said packetized program information; and

incorporating said multimedia object description information and said  
linking information into packetized data for output to a transmission channel.

13. A method according to claim 12, wherein  
said location indicator identifies a location of said multimedia object  
in one of (a) said packetized program information from said first source, and (b)  
information derived from a second source different to said first source.

14. A method according to claim 13, wherein  
said location indicator identifies a location of said multimedia object  
from said first source using one of (a) an MPEG compatible packet Identifier  
(PID), (b) an MPEG compatible Digital Storage Media code.

15. A method according to claim 13, wherein  
said location indicator identifies a location of said multimedia object  
derived from said second source using one of (a) an Internet URL, (b) an Internet  
IP address, (c) an Email address, (d) a telephone/fax/videophone number.

16. A method according to claim 15, wherein

said multimedia object type comprises at least one of, (a) a video segment or still image, (b) an audio segment, (c) text, (d) an Internet web page or Internet data, (e) an advertisement, (f) an icon for user selection of a service, (g) an animation segment, (h) an Email message, (i) a user prompting indicator, and (j) a broadcast channel identification icon.

17. A method according to claim 12, wherein

said multimedia object description information further includes at least one of, (a) an object start time, (b) an object duration, (c) an object display mode, (d) an object version number, (e) an object format, for use in decoding.

18. A method according to claim 12, wherein

said linking information associates said multimedia object with at least one of, (a) an electronic program guide, (b) a video program, (c) an audio program and (d) an Internet web page image.

19. A method for decoding packetized program information to provide data content of a program, comprising the steps of:

identifying ancillary information in said packetized program information, said ancillary information including information describing a multimedia object associated with an image in said packetized program information, said multimedia object description information comprising,

(a) a location indicator identifying a location of a multimedia object for use in acquiring said multimedia object, and

(b) a type indicator identifying a multimedia object type for use in decoding said multimedia object; and

acquiring and decoding said multimedia object using said multimedia object description information; and

formatting said multimedia object for display.

20. A method according to claim 19, including the step of

associating said multimedia object with one of (a) a video image,

and (b) audio data.

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21. A method according to claim 20, including the step of forming a composite image for display combining said multimedia object and at least one of, (a) an electronic program guide, (b) a video program, and (c) an Internet web page image.

22. Apparatus for decoding packetized program information from a first source to provide data content of a program, comprising:

means for identifying ancillary information in said packetized program information, said ancillary information including information describing a method associated with a multimedia object in said packetized program information, said method description information comprising,

(a) information enabling identification of a method and

(b) information for initiating activation of said method upon a predetermined event; and

means for acquiring and decoding said method using said method description information; and

means for initiating activation of said method upon said predetermined event using said method description information.

23. Apparatus according to claim 22, wherein

said method comprises software for performing at least one of the following functions, (a) altering user interface display controls, (b) generating an image window within an encompassing image (c) generating an HTML or SGML document (d) generating a menu of selectable items (e) generating an icon representing a user selectable item for display, (f) generating an image window for initiating Internet access, (g) generating an image window supporting an electronic commerce transaction, and (h) dialing a telephone number.

24. Apparatus according to claim 23, wherein altering user interface display controls comprises modifying at least one of

(a) keyboard/mouse button response characteristics, (b) display video characteristics, and (c) audio characteristics.

25. Apparatus according to claim 22, wherein

said method comprises software for at least one of,

(a) providing descriptive text for said image object, and

(b) providing at least one user selectable control item associated with said image object.

26. Apparatus according to claim 22, wherein

said information for initiating activation of said method upon a predetermined event comprises information for at least one of, (a) activating said method in response to user selection of a command or displayed menu item, (b) activating said method in response to a scheduled event, (c) activating said method in sequence following completion of a particular function, and (d) activating said method substantially immediately said method is processed and ready for activation.

27. Apparatus according to claim 26, wherein

said information for initiating activation of said method upon a scheduled event comprises a start time indication.

28. Apparatus according to claim 27, wherein

said start time indication is associated with a specific video program and is derived from electronic program guide information.

29. Apparatus according to claim 27, wherein

said information for initiating activation of said method further includes a duration.

30. Apparatus according to claim 22, wherein

said ancillary information includes electronic program guide information from said first source.

31. Apparatus according to claim 27, wherein

said ancillary information further includes information for acquiring said method from said first source comprising,

a data identifier for identifying a location of said method conveyed within said packetized program information from said first source.

32. Apparatus according to claim 22, wherein

said ancillary information further includes acquisition information for use in acquiring said method from a second source different to said first source, and

said acquisition information includes one of (a) an Internet URL, (b) an Internet IP address, (c) an Email address, and (d) a telephone/fax/videophone number.

33. Apparatus according to claim 32, wherein

said means for acquiring said method includes establishing bi-directional communication with said second source using said acquisition  
5 information, and said bi-directional communication path is different to the communication path between said decoding apparatus and said first source.

34. Apparatus according to claim 22, including

formatting means for forming a composite image for display  
10 combining an image produced using said method and at least one of, (a) an electronic program guide, (b) a video program, and (c) an Internet web page image.

35. A storage medium containing digital data representing video  
15 information comprising:

packetized program information representing a video program; and  
ancillary information including information describing a method  
associated with a multimedia object in said packetized program information, said  
method description information comprising,

20 (a) information enabling identification of a method, and  
(b) information for initiating activation of said method upon a predetermined event; and

information for associating said method with a multimedia object in  
said packetized program information.

25 36. A storage medium according to claim 35, wherein

said ancillary information includes electronic program guide  
information, and wherein

said method is associated with said electronic program guide.

37. A method for forming program guide information at a first source suitable for decoding packetized program information to provide data content of a program, comprising the steps of:

5 forming information describing a method associated with one or more images in said packetized program information, said method description information comprising,

(a) information enabling identification of a method, and

10 (b) information for initiating activation of said method upon a predetermined event; and

forming linking information associating said method with an image in said packetized program information; and

incorporating said method description information and said linking information into packetized data for output to a transmission channel.

15 38. A method according to claim 37, wherein said method identification information identifies a location of said method in said packetized program information from said first source.

20 39. A method according to claim 37, wherein said method description information includes data for acquiring said method from a second source different to said first source using one of (a) an Internet URL, (b) an Internet IP address, (c) an Email address, (d) a telephone/fax/videophone number.

25 40. A method according to claim 37, wherein said linking information associates said method with at least one of, (a) an electronic program guide, (b) a video program, (c) an audio program and (d) an Internet web page image.



41. A method for processing packetized program information to provide data content of a program, comprising the steps of:

5 identifying ancillary information in said packetized program information, said ancillary information including information describing a method associated with one or more images in said packetized program information, said method description information comprising,

(a) information enabling identification of a method, and

10 (b) information for initiating activation of said method upon a predetermined event; and

acquiring and decoding said method using said method description information; and

15 initiating activation of said method upon said predetermined event using said method description information.

42. A method according to claim 41, wherein said acquiring step comprises

20 acquiring said method from a second source different to said first source, using one of (a) an Internet URL, (b) an Internet IP address, (c) an Email address, and (d) a telephone/fax/videophone number.

43. A method according to claim 41, wherein said initiating activation step comprises

25 initiating activation of said method by at least one of, (a) activating said method in response to user selection of a command or displayed menu item, (b) activating said method in response to a scheduled event, (c) activating said method in sequence following completion of a particular function, and (d) activating said method substantially immediately said method is processed and ready for activation.

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44. A method for processing packetized program information from a first source to provide data content of a program, comprising the steps of:

identifying ancillary information in said packetized program information, said ancillary information including,

(a) a first identifier for identifying a location of data representing a multimedia object, and

(b) a second identifier for identifying a location of data representing program guide information, and

(c) a third identifier for identifying a location of data representing a video program in said packetized program information, and

acquiring and decoding said multimedia object, said program guide information and said video program data using said ancillary information; and formatting acquired data for display.

45. A method according to claim 44, wherein said ancillary information further includes

(d) a fourth identifier for identifying a location of data representing a method.

46. A method according to claim 44, wherein said first, second and third identifiers identify a location of said multimedia object in either one of (a) said packetized program information from said first source, and (b) information derived from a second source different to said first source.

47. A method according to claim 46, wherein said information is derived from said second source different to said first source using one of (a) an Internet URL, (b) an Internet IP address, (c) an Email address, (d) a telephone/fax/videophone number.

48. A method according to claim 44, wherein said formatting step includes the steps of

associating said multimedia object with one of (a) a video image, and (b) audio data, and

forming a composite image for display combining said multimedia object and at least one of, (a) an electronic program guide, (b) a video program, and (c) an Internet web page image.

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